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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,735	12/07/2006	Wilhelm Janssen	(46WD) 133334	6902
52082	7590	07/07/2009	EXAMINER	
General Electric Company GE Global Patent Operation PO Box 861 2 Corporate Drive, Suite 648 Shelton, CT 06484			FINCH III, FRED E	
			ART UNIT	PAPER NUMBER
			2838	
			NOTIFICATION DATE	DELIVERY MODE
			07/07/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gpo.mail@ge.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/571,735	<b>Applicant(s)</b> JANSSEN ET AL.	
	<b>Examiner</b> Fred E. Finch III	<b>Art Unit</b> 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/21/2009</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This Office action is in response to the supplemental amendment filed on 28 May 2009.

1. The information disclosure statement filed 21 May 2009 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each item listed that is not in the English language. The submitted article entitled, "Energiesparen mit Frequenzumrichter" has not been considered since it is in the German language and no translation nor concise explanation has been provided.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spée et al. (U.S Patent 5,798,631) in view of Mose et al. (U.S. Patent 4,876,637).

In re claim 1, Spée et al. disclose a method for operating a frequency converter (Fig. 9) for a generator (BDFM) of a wind turbine in the event of a substantial grid voltage drop in a grid (Col. 16, lines 24-31), wherein the frequency converter comprises an AC/DC converter (28) connected to the generator, a DC/AC converter (38)

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connected to the grid, and a DC link circuit (V<sub>dc</sub>) for connecting the AC/DC converter to the DC/AC converter. Spée et al. disclose that it was known to maximize the output current of the converter during grid disturbances (Col. 15, lines 53-58). However, Spée et al. do not specifically disclose either reducing an output voltage of the DC link circuit or reducing an operation frequency of electronic switches of the DC/AC converter for increasing the output current of the DC/AC converter. Whereas Mose et al. disclose an AC-DC-AC converter system (Fig. 1) and teach that it was known to control the inverter (4) to decrease the DC link voltage (V<sub>dc</sub>) in order to increase the output current to the load (Col. 5, lines 62-64). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the invention of Spée et al. by controlling the inverter to increase the DC link voltage during grid voltage disturbances in order to increase the output current of the converter, as taught by Mose et al.

In re claims 2 and 3, Spée et al. and Mose et al. disclose the claimed invention except for performing the reducing step when, for a few seconds, the grid voltage is decreased up to about 10% or 20% of its normal value, and wherein the reducing step is terminated when, for a few seconds, the grid voltage is increased to at least about 80% or 90% of its normal value. It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform the reducing step and terminate the reducing step under the above-stated conditions, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In re claim 6, Spée et al. disclose increasing the output current of the DC/AC converter (Col. 15, lines 56-58) without a substantial change in energy losses in the electronic switches of the DC/AC converter (Col. 13, lines 33-39; output power from the converter can be maximized while minimizing electrical losses).

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spée et al. (U.S. Patent 5,798,631) and Mose et al. (U.S. Patent 4,876,637) as applied to claim 1 above, and further in view of Scott et al. (U.S. Patent 6,144,190).

In re claim 4, Spée et al. and Mose et al. disclose all of the claim limitations except for the step of reducing the output voltage of the DC link circuit comprising controlling the time interval between the zero crossover of the output voltage of a phase of the generator and an operation of an electronic switch of the AC/DC converter. Whereas Scott et al. disclose an energy conversion system (Fig. 2) comprising an AC/DC rectifier (202) on the input side, an intermediate DC link circuit (236, 237, and 238), and a DC/AC inverter (214) on the output side, wherein the DC link voltage can be decreased by changing the firing angle of one or more of the gate drive signals (Col. 10, lines 24-27). The firing angle is defined at Col. 8, lines 47-49 as the timing between the gate signal and the zero-crossing of a phase of the generator output. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Spée et al. and Mose et al. by changing the timing between the zero-crossing of the generator output and the gate drive signals in order to decrease the DC link voltage as taught by Scott.

In re claim 5, Scott discloses a method of controlling a frequency converter (Fig. 2) wherein the step of reducing the output voltage of the DC link circuit (236,237, and 238) comprises reducing the pulse width interval of the electronic switch of the AC/DC converter (Col. 10, lines 24-26 describes reducing the pulse width of the rectifier gate signals in order to decrease the DC link rail voltage).

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hubert et al. (U.S. Patent 6,577,108) disclose an inverter system for voltage regulation of a utility grid wherein, in the event of voltage sag on the grid, control of the inverter is adjusted in order to increase the output current to the grid.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred E. Finch III whose telephone number is (571) 270-7883. The examiner can normally be reached on Monday through Friday, 8:00AM - 5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash N. Gandhi can be reached on (571) 272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F.E.F./

Fred E. Finch III  
Examiner  
Art Unit 2838

/Jeffrey L. Sterrett/  
Primary Examiner, Art Unit 2838